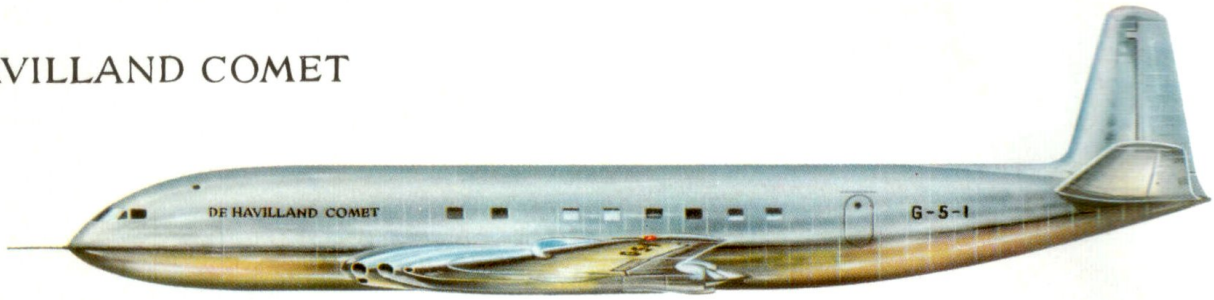
PROFILE PUBLICATIONS

The de Havilland Comet Srs. 1 - 4

NUMBER 108

TWO SHILLINGS

DE HAVILLAND COMET



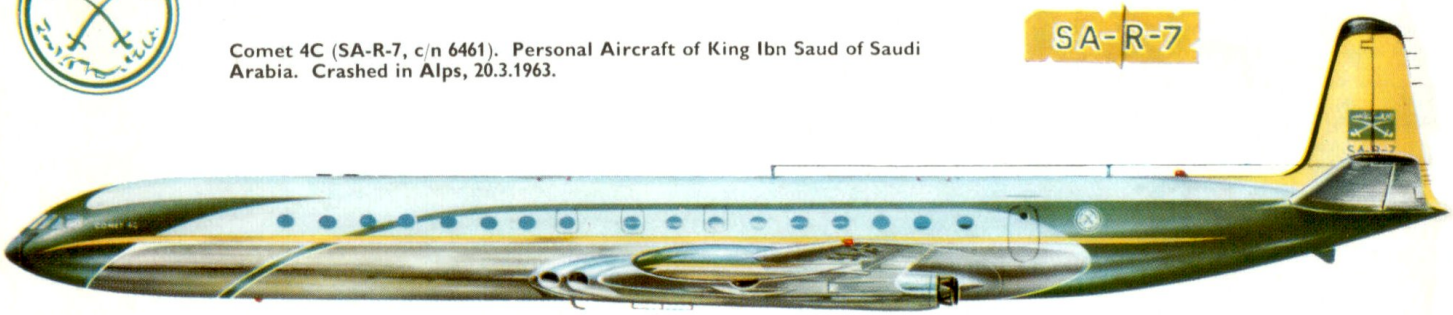
Comet Prototype as it appeared shortly before first flight (July 27th, 1949)

First Production Comet 1 (G-ALYP) for B.O.A.C. First flew 9.1.1951.

Comet 1A (VC 5302, c/n 06018) second machine for R.C.A.F., shown after introduction of oval cabin windows. Withdrawn from service and stored in 1964.

First Comet 1A for Air France. Returned to U.K. June 1956 as G-AOJT and dismantled at Farnborough.

Comet 4C (SA-R-7, c/n 6461). Personal Aircraft of King Ibn Saud of Saudi Arabia. Crashed in Alps, 20.3.1963.



The de Havilland Comet Srs. 1 - 4

by P. J. Birtles

Classic study of a Comet 4B of Olympic Airways in flight, April 1960. (Unless specifically indicated otherwise, all photographs appearing in this Profile are published by kind permission of the de Havilland Aircraft Company).

On 11th March 1943, the Government announced its intention to direct some efforts towards the design of civil transport aircraft, after reports from tours of the American industry by Sir Ralph Sorley and Sir Roy Fedden, warning of the amount of work being done on civil aircraft by the Americans. This led to the formation of the Brabazon Committee.

In an attempt to offset the wartime lead that the Americans had established in the design and construction of transport aircraft, the Brabazon Committee recommended a number of design targets for the British Industry in May 1943. Type 4 was a jet propelled trans-Atlantic mail plane cruising at over 400 m.p.h., capable of carrying a ton of payload and having a pressure cabin for the crew.

In June 1943, official opinion was in favour of the project design, but nothing could go beyond this stage due to heavy commitments of building war planes. However, the de Havilland Aircraft Company had made perhaps the earliest jet airliner study of a twin de Havilland Goblin engine powered Flamingo in mid 1941. These early designs were drawn round the de Havilland Goblin centrifugal jet engine developing some 3,000 lbs. static thrust. The later de Havilland Ghost was very similar in concept, but developed 5,000 lbs. static thrust. During the period January to June 1943, a short range civil design based on four Goblins was being considered. Later that year, a more detailed twenty passenger project was proposed having a Vampire layout with three Goblins in the rear of the nacelle. The design range was approximately 700 miles. From November 1943 to April 1944 the design again changed to a canard layout with three DH Ghosts in the tail.

On the 19th April 1944, the Brabazon Committee recommended the immediate go ahead on the pure-jet airliner, although it appeared to be relegated to short range operation at this stage. Development and experience with the de Havilland Vampire suggested that long range flights might be possible and B.O.A.C., who appreciated the benefits to passenger travel of vibrationless flight over long ranges, saw the possibilities of range development with increasing runway lengths and therefore heavier fuel loads.

In October 1944, a three DH Ghost twin boom layout with provision for six passengers and 2,000 lbs. of mail was proposed by de Havillands to the Brabazon Committee. However, this project was becoming so specialised that an alternative proposal was made for a more conventional airliner. Studies were made with various fuselage designs in March 1945, seating twenty-four to thirty-six passengers.

In October 1945, a tailless design was proposed having a 40° sweep wing, weighing 75,000 lbs. and powered by four DH Ghosts. This idea was dropped in March 1946 as it was considered basically uneconomical, due to the limited effectiveness of the flight controls in this layout. However, much experience on this design was later obtained with the tailless D.H.108, three of which were built. By May 1946, a more conventional design with 40° wing sweep was proposed showing an Atlantic payload of 5,000 lbs. Data provided from the D.H.108 showed the sweepback to be uneconomical due to the lower maximum lift coefficient and higher structural weight. If the sweepback was eliminated payload could be almost doubled. As a compromise, a more orthodox 20° sweepback wing aircraft was settled upon and so the final Comet shape was established during September 1946. By November 1946, a complete weight and performance statement was available with performance guarantees, all of which were met by the time the Comet entered service in 1952. Design work commenced on the D.H.106 Comet in September 1946 and it flew two and three-quarter years later. It entered service five and a half years after design work was initiated, which, considering the pioneer nature of the project, was no mean feat.

During 1946 and 1947, initial production orders were negotiated with B.O.A.C. for eight aircraft and with British South American Airways for six aircraft. After these two airlines merged, the contract was finalised with B.O.A.C. for fourteen Comets. The Ministry of Supply ordered the two prototypes to specification 22/46 as production aircraft.

On 2nd April 1949, the first prototype was rolled out for engine runs. This aircraft was fitted with a large single-wheel undercarriage, which was later

The second prototype Comet G-ALZK before painting, showing the large main undercarriage wheels originally fitted.
(Photo: Hawker Siddeley)

replaced by a four-wheel bogie type undercarriage.

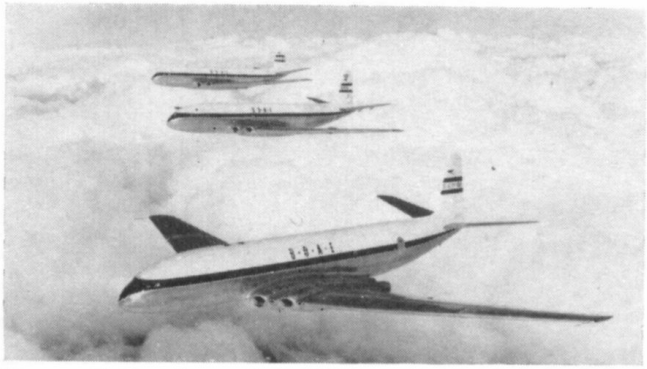
De Havilland Ghost engine flight development was undertaken in two specially modified Lancastrian aircraft, with the Ghost replacing the outboard Rolls Royce Merlins. The first flew on 24th July 1947, the pair of them flying 425 hours between them, thus contributing a great deal of experience towards the Comet's engine operation. The D.H.108 also helped with the development of the Comet's power controls, and in addition, a full size control system test rig was set up in the factory. This rig was in continuous operation for over three years. The whole aircraft structure was thoroughly tested starting with detail components and followed by the large assemblies. The wings were subjected to typical landing and flying loads of the worst type to be expected. Sections of the fuselage were installed in the decompression chamber at Hatfield to assimilate the conditions met at 70,000 ft. at a temperature of —70°C. The fuselage nose was the first section to be tested, by being given 2,000 pressure applications at 9 lb. pressure, the results being entirely satisfactory. The standard working pressure in service was to be 8¼ lb. per square inch. For safety reasons and in order to limit damage to the specimen, it was decided to carry out all future pressure tests under water, since it is virtually incompressible. The water inside the cabin was pressurised to obtain greater working stresses. The nose and fuselage were many times pressurised to double the required pressure, i.e. 16½ lbs. per square inch, and the windows were even more stringently tested to far greater pressures.

At last the day came for the first flight of the new Jet Airliner on the evening of 27th July 1949, when John Cunningham took it into the air for thirty-one minutes with John Wilson and three other crew. From results of early flight testing the Comet appeared extremely competitive with the piston types then in use. The take-off weight was raised to 105,000 lbs., carrying about thirty-six passengers for approximately 1,500 miles at just under 500 m.p.h. A great deal of attention was paid to the handling of the aircraft at both ends of the speed range, with generous flaps for the slow speeds and power controls to assist the pilot. The first public appearance was at Farnborough in September 1949, followed by the first overseas trip to Tripoli on 25th October, three months after the first flight. The total flying time there and back was only approximately six and a half hours. Many records were claimed by the Comet 1 including the London-Rome-London trip on 16th March 1950, each way taking just under two hours, and the London-Cairo trip taking five hours and seven minutes on 24th April 1950, the latter on the way to tropical trials at Khartoum. The second M.O.S. Comet G-ALZK made its first flight in the hands of John Cunningham and Peter Bugge one year after the first Comet originally took to the air. It was delivered well ahead of schedule to the B.O.A.C. Comet Training Unit at Hurn on 2nd April 1951 to start the crew training programme and one hundred hours route proving. On the 7th May the same year, one of the prototype Comets was demonstrated with two de Havilland Sprite rockets, one between each pair of Ghosts, to assist take-off in marginal conditions, such as hot and high airfields. This was found not to be required in practice after the tropical trials, so the Sprites were not fitted as standard. Provision was made in the structure in case a difficult operation was envisaged.

INTO SERVICE

The first certificate of airworthiness for Comet 1

One of the prototype Comets taking off from Hatfield with the assistance of de Havilland Sprite rocket engines.



First production Comet 1, G-ALYP, in formation with the two prototypes.

G-ALYS was issued on 22nd January 1952, followed by the inauguration of the first Jet Airliner service by B.O.A.C. on 2nd May 1952 by Comet G-ALYP, when it left London Airport for Rome, Beirut, Khartoum, Entebbe, Livingstone and Johannesburg.

The next Comet customer and the first from overseas, was Canadian Pacific Airlines, who announced an order for two Mk.1A's on 15th December 1949, the first being shown statically at Farnborough in 1952. Unfortunately, these never went into service, the second one, CF-CUN crashing at Karachi on its delivery flight to Sydney on 2nd March 1953. The first one was then resold to B.O.A.C. to replace G-ALYZ, which had crashed at Rome, the replacement becoming G-ANAV.

The Series 1A Comet was an improved version of the Series 1, the fuel tankage being raised by 1,000 gallons to 6,906 gallons total, all the extra being in bag tanks in the wings. The all up weight was increased from 105,000 lbs. to 115,000 lbs. and water-methanol injection for the Ghost engine to improve thrust on take-off. Following the Canadian Pacific order, were orders from the Royal Canadian Air Force for two Series 1A's, and from Air France and Union AeroMaritime de Transport for three Series 1A's each.

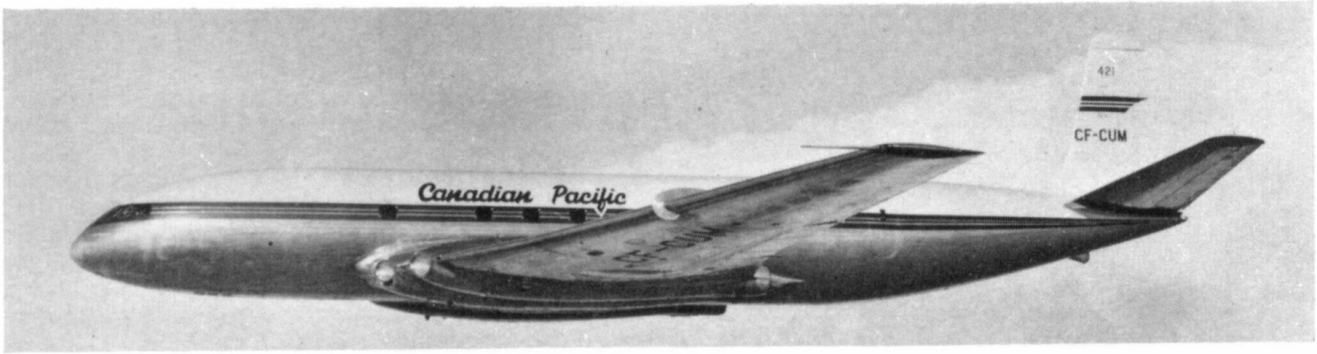
On the 16th February 1952, the prototype Comet 2 G-ALYT made its first flight from Hatfield, having had its Ghost engines replaced by Rolls Royce Avons. This was conceived as a trans-Atlantic aircraft and B.O.A.C. ordered twelve of these fourty-four seaters after the tropical trials at Khartoum in May 1953. The Comet 2 had an all up weight of 120,000 lbs. and each of its Avons gave a thrust of 7,300 lbs. The fuselage was three feet longer and the maximum still air range increased from 1,770 miles to over 2,500 miles. The payload went up by 1,700 lbs. to 13,500 lbs.

This prototype of the Comet 2 was finally employed on de-icing tests with an Avon 524 in the starboard outer position, being sprayed with water from a special rig in front of the intake. This aircraft made its last short flight on 28th May 1959, when John Cunningham landed it on the grass airfield at Halton where it became 7610 M with No. 1 school of technical training. Although it will never fly again, this Comet is still doing a useful job teaching apprentices how to run the engines.

THE ORDERS MULTIPLY

At this stage, there were fourty-seven Comets on order or delivered, twenty-eight of these being the new Comet 2's. One of the new customers was British Commonwealth Pacific Airlines who ordered six Comet 2's for use between Australia and the West Coast of the United States of America. In the summer of 1952 Japan Airlines ordered two Comet 2's, followed by two Mk.2's for Linea Aeropostal Venezuela on 1st August and the first order for the Series 3 on 20th October 1952, by Pan American Airways

F-BGSA, c/n 06015, the first Comet 1A for Union Aeromaritime Transport soon after roll-out at Hatfield. This machine made its initial proving flight from Paris to Dakar on 27th December 1952, and was withdrawn from service on April 12th 1954. (Photo: Hawker Siddeley) Above: *Tail detail of F-BGSA.*



Comet 1A c/n 06013, CF-CUM of Canadian Pacific. The first of the improved 1A's, this aircraft was sold to B.O.A.C. as G-ANAV and ended its days at the R.A.E. Farnborough. (Photo: Hawker Siddeley)

for three aircraft. A year later B.O.A.C. announced their intention of buying three Comet 3's to replace, later, their initial Comets and to fly the North Atlantic.

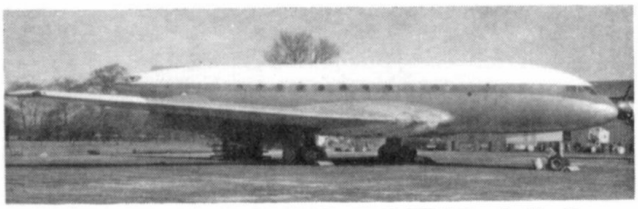
U.A.T. was the second operator to put the Comet into passenger service this being from Paris to Dakar on 27th December 1952 on a proving flight, followed by daily services from 19th February, 1953.

Orders had really begun rolling in at this stage; Panair do Brasil ordered four Comet 2's with an option on the Series 3. Air France ordered three Comet 2's on 7th August 1953, their Comet 1A's starting the service from Paris to Rome and Beirut on 26th August with F-BGNY. Shortly after this the B.O.A.C. order was amended to include only nine Series 1's, the remaining five being completed as Comet 2's to bring the total of B.O.A.C. Series 2's to eleven. The two R.C.A.F. Comet 1A's were delivered to 412 Transport Squadron in the spring of 1953, becoming the first Comets in North America and the first military jet transports.

In the first year of operation there had been two accidents in B.O.A.C. service, one with G-ALYZ at Rome on 26th October 1952 when it failed to get airborne and was damaged beyond repair, though nobody was injured. The second, and first major accident was exactly a year after the start of operations when G-ALYV broke up in a storm shortly after take-off from Calcutta on 2nd May 1952.

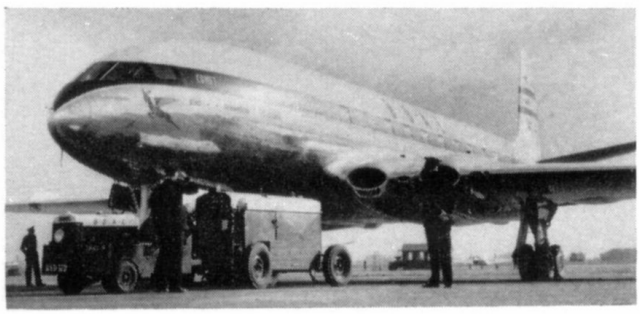
After the two take-off accidents to CF-CUN and G-ALYZ a drooped leading edge was fitted to the wings of all Comets to improve take-off performance and to avoid any tendency to ground stall on take-off. Shortly after, Air India took up their option on the Comet 3's and South African Airways leased Comets from B.O.A.C. in October 1953.

By the end of 1953, all the Series 1's and 1A's had been delivered, the first production Comet 2, G-AMXA having flown at Hatfield on 27th August. To deal with the volume of orders, production lines for the Comet 2's were started at Chester and at Shorts of Belfast. With the closing of the year, U.A.T. and C.P.A. had ordered three Comet 2's, with Air France increasing their order to six Series 2's making a grand total of thirty-five on order. The orders for the longer range and larger Series 3 Comet was eleven including five for B.O.A.C. plus the Government owned prototype. The Comet was still the only jet transport in commercial service and working well. It was popular with passengers and operators and generally considered an outstanding success.



Comet 1A, XM 829, c/n 6021, ex-F-BGNY of Air France; it temporarily became G-AOJU for the ferry flight from Paris. It was used for Decca-Dectra trials at Boscombe Down until 20th February, 1964 when it was retired to the fire compound at Stanstead. Seen here in a sorry state of repair, it has been useful in providing spares, particularly the Ghost engines, to keep the Comet XM 823 flying at Hatfield. (Photo: the author)

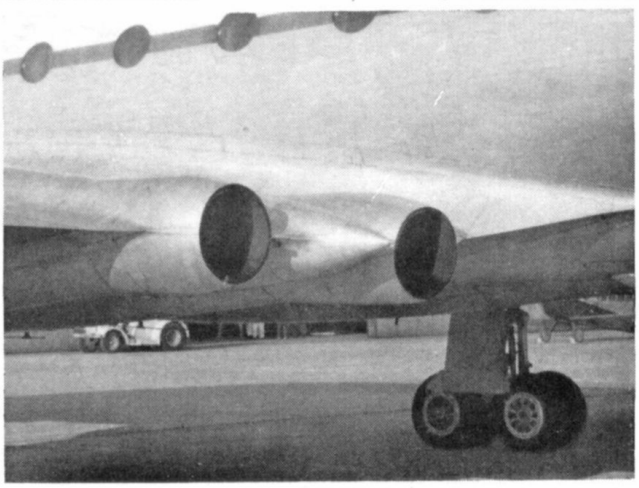
Comet 1A, c/n 06013, G-ANAV in the combined colours of B.O.A.C. and South African Airways.
(Photo: Hawker Siddeley)



TRAGEDY IN THE MEDITERRANEAN

Then disaster struck. On Sunday 10th January 1954, the first production B.O.A.C. Comet 1 G-ALYP crashed shortly after take-off from Rome (Ciampino) and fell into the sea near Elba. The twenty-nine passengers and crew of six were all killed and

View of the fairing over the Sprite installation provision on Comet 1A XM 823. (Photo: the author)



Comet 2 of Royal Air Force Transport Command.

B.O.A.C. grounded all their fleet immediately for careful inspection. After some sixty precautionary modifications were made to the fleet of Comets, covering all the suspected causes of the disaster, the Minister of Transport and Civil Aviation gave his permission for the services to be resumed on 23rd March. Shortly after this move, on 8th April, Comet 1 G-ALYY on charter to South African Airways again took off from Rome and after climbing to altitude came down in the sea near Naples. All Comets were immediately grounded and the C. of A. withdrawn on 12th April. Production of the Comets was immediately stopped, although development work continued on the Series 3. Sir Arnold Hall, Director of the R.A.E., was asked to investigate the accidents and work was started on structural test of the aircraft on G-ALYR and G-ALYS. Flight tests were carried out on G-ANAV to see if flutter of the control surfaces could result.

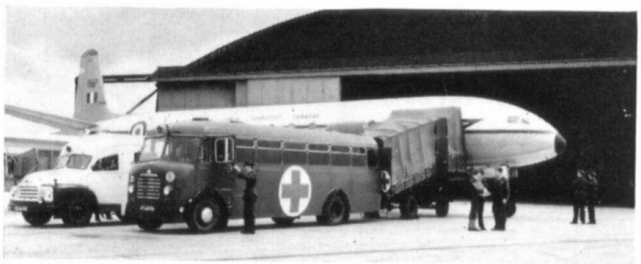
Pressure tests on G-ALYU were begun in June, with the fuselage immersed in a water tank. The normal operating pressure of 8¼ lbs. per square inch was applied to assimilate the normal aircraft operation, plus a proof pressure of 11 lbs. every 1,000 pressurisations. This particular aircraft had in service already had 1,230 pressure flights and after a further 1,830 simulated flights, the cabin failed at the corner of a window, there being evidence of fatigue. As a comparison, Comet G-ALYP made 1,290 pressurised flights before crashing, and G-ALYY made only 900 before crashing.

Meanwhile, during March and April, an enormous salvage operation had been taking place in the sea to a depth of 600 ft. off Elba for the wreckage of G-ALYP. On examination of the wreckage, a failure was seen to have occurred on the top of the cabin starting at a crack in the corner of the cut-out housing the ADF ariel. This had rapidly increased causing an explosive decompression of the cabin and the break-up of the aircraft without any warning. From the evidence of the salvage engines, it was clear that these were in no way to blame for the cause of the crash.

It was found by the Court of Inquiry that de Havillands had more than satisfied current British Civil Airworthiness Requirements for pressurised aircraft, but that knowledge had been limited until the results of the accidents. The importance of fatigue of the pressure cabin was not realised until the findings of the accidents although tests had been carried out on the wings to check for fatigue.

De Havillands had commenced in July 1953 to pressure test a representative section of the front cabin applying working pressure 18,000 times as well as approximately thirty higher pressurisations up to twice the working pressure. The results of these tests was a fatigue crack in the skin at the corner of a window, but this happened after such a number of pressurisations that the cabin was considered to be quite safe. It was pointed out at the inquiry that possibly this test specimen had lasted so long because the increase in pressurisation early on, to double the working pressure, might tend to increase the life of the specimen cabin.

With the knowledge gained from the inquiry, de Havillands set about redesigning the Comet 3 to become the similarly shaped Comet 4. The earlier Mk.2's which had already been completed were extensively modified, as were the R.C.A.F. Mk. 1A's,

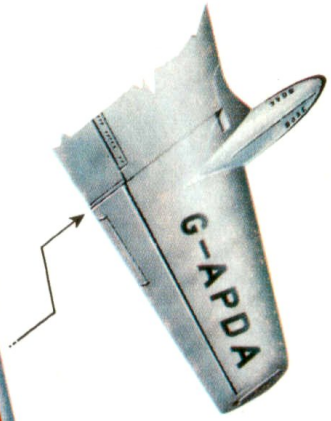


Comet 2, XK 697, c/n 6032 of No. 216 Sqdn. R.A.F. in the ambulance rôle at Lyneham. (Air Ministry photo.)

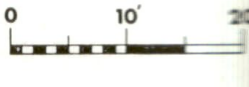
Comet 3 G-ANLO, c/n 06100 in its original colours during the round-the-world tour of December 1955.

G-ANLO after modification to 3B standard with short span wing; seen here in early B.E.A. scheme, named "R.M.A. William Brooks". (Photo: Hawker Siddeley)

COMET 4B (G-APMC).
Third Comet supplied to British European Airways.



Outer wing and fuel tank of Comet 4. Note greater span

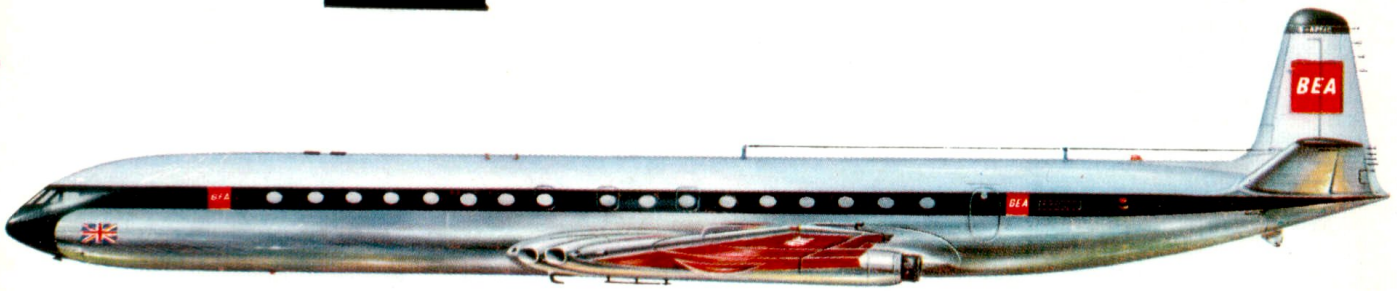


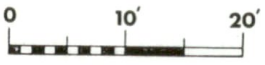
Outer wing and fuel tank of Comet 4. Note greater span

BEA

B.E.A. insignia

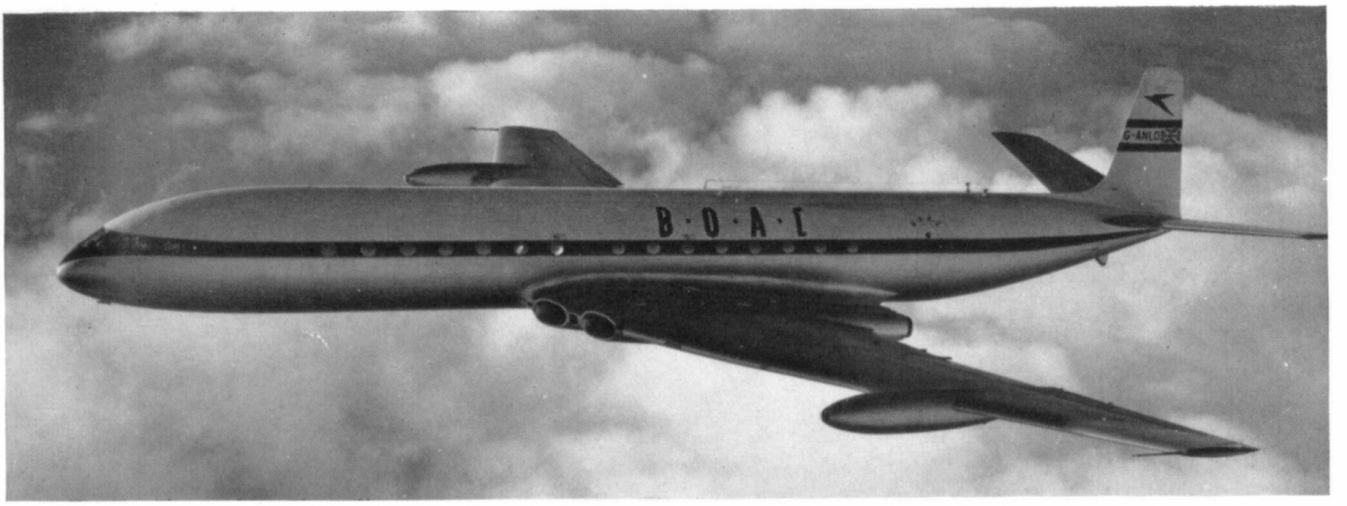
ROYAL MAIL insignia carried on both sides of rear fuselage.





De Havilland Comet 4B
Rolls-Royce Avon Turbo-jets

Legend displayed just aft of rear passenger door port side only.



B.O.A.C. Comet 3 G-ANLO seen against the background of a fine cloudscape.

to have thicker fuselage skins, oval windows, spin dimpling instead of countersinking where possible, careful de-burring of all holes and cut-outs, and the jet pipes swept away from the fuselage to reduce buffet.

The Comet 3 prototype had started its flight trials on 19th July 1954, while the second partly completed airframe was structurally tested, the wings separate from the fuselage.

The fuselage was tested to failure during these tests when 105% of the design loads was achieved in bending, the patched up remains later being used as a customers' mock-up.

Fortunately, the R.A.F. had a requirement for a jet transport aircraft and ten of the modified Mk. 2's were supplied to 216 Sqdn. at Lyneham for world wide operations and three more were delivered to 90 Group for signals trials. Two of the ex-Air France Mk. 1A's were also strengthened, these being XM 829, which flew at Boscombe Down for Decca/Dectra trials and is ending its days at the Stansted Fire Compound, and XM 823, which is still flying from Hatfield in Hawker Siddeley Dynamics trials, with no pressurisation.

Two other Comet 2's were modified, these being the Mk. 2E's, additional modifications being to fit these with 10,500 lb. static thrust Avon 524's in each of the outer engine bays in place of the normal 7,330 lb. static thrust Avon 504's. Both of these, G-AMXD and G-AMXK, were used by B.O.A.C. during 1957 and 1958 on route-proving and engine handling training in preparation for the Avon 524 powered Series 4. When these trials were completed, G-AMXD became XN 453 and was used at Farnborough for long range radio aid development until it was relegated to fire fighting practice at Boscome Down. G-AMXK was fitted out as a development aircraft for the Smith's automatic landing equipment, starting with the Auto-flare for the Comet 4's, and finally the automatic landing system as fitted to the Belfast.

THE COMET 4

The sole development Comet 3, G-ANLO, was without the new structure and could, therefore, not be fully pressurised, but despite this, it completed a large part of the C. of A. flying for the Series 4 including a round the world flight in December 1955. The Comet 3 was powered by Avon 502 engines, had large pod tanks on the leading edge and accommodation for a maximum of seventy-eight passengers. It was a similar shape to the Comet 4 and was first rolled out on 4th May 1954, followed by its first flight in the hands of John Cunningham and Peter Bugge. After G-ANLO had finished the development for the Comet 4, it was modified by having the wings reduced in span from 114·8 ft. to 107·8 ft. and the pod tanks removed to represent the Comet 4B but without the longer fuselage. It first flew in this form on 21st August 1958 and was finally delivered to B.L.E.U. Bedford as XP 915 on 21st June 1961 where it is still busy up until the time of writing (March 1966).

In 1957, B.O.A.C. ordered nineteen Comet 4's as a standard aircraft for all their routes except the North Atlantic, although this was where it scored its major triumph on 4th October 1958 by inaugurating trans-Atlantic Jet services from London to New York. The second production airframe was installed

Comet 3B in its present colours as XP 915 just before delivery to the Blind Landing Experimental Unit at R.A.E. Bedford. (Photo: Hawker Siddeley)

The first production Comet 4, G-APDA. In the centre foreground a T.V. interviewer (left) and de Havilland test pilot John Cunningham (right), the wartime R.A.F. night-fighter ace.

in the test tank at Hatfield where it satisfactorily completed the equivalent of thirty years of airline life.

On 30th September 1958, B.O.A.C. received their first two Comet 4's, G-APDB and G-APDC, four and a half years since the Comet 1's had been withdrawn from service. The last Comet 4 for B.O.A.C. was delivered on the 11th January 1960, by which time B.O.A.C. was flying them to all the Continents of the world, starting during 1959. In their first two years of operation, B.O.A.C. completed twenty-seven million miles in a flying time of 68,500 hours carrying 327,000 passengers in their nineteen Comet 4's.

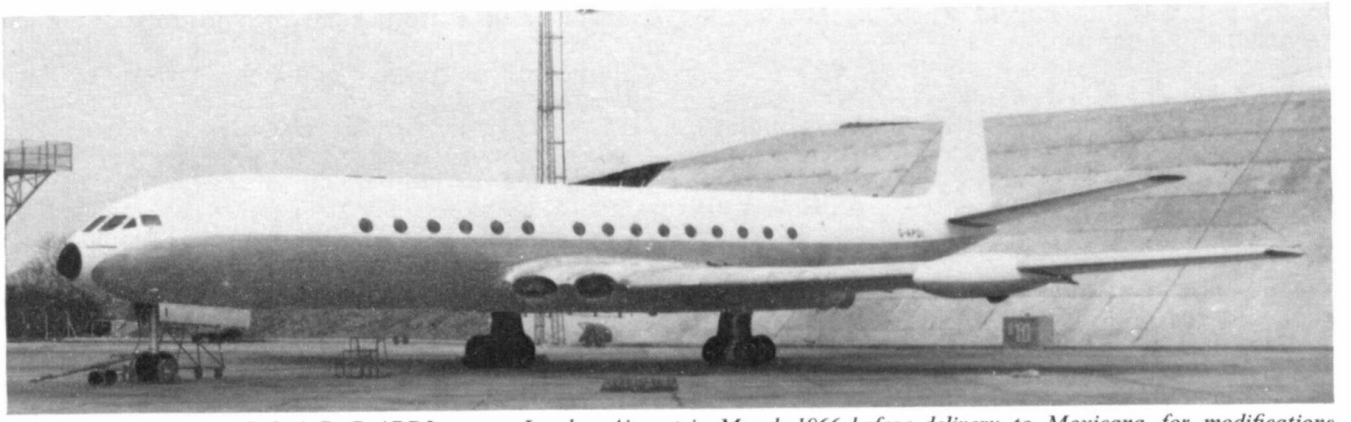
Following the B.O.A.C. order was an order for three Comet 4's for Aerolineas Argentinas which was quickly made up to a total of six—their services commencing from Buenos Aires to Santiago on 16th April 1959, but an unfortunate series of accidents reduced their fleet to only three aircraft. The only other customer for the Comet 4 was East African Airways who ordered two aircraft and later took up their option on a third. The proposed order from Capital Airlines in July 1956 was thought at the time to be a great step forward in re-entering the American market. They ordered four Comet 4's and ten Comet 4A's, the latter which were to operate the shorter stages at a lower cruising altitude, and to do this had a forty inch fuselage extension to accomodate ninety-two tourist passengers, and wing span shortened by seven feet to obtain higher cruising speeds. Unfortunately, due to various factors, on the part of the customer, this order was cancelled, but the aircraft were modified to the similar Comet 4B.

B.E.A. then went ahead and ordered the modified version with a thirty-eight inch fuselage extension and shorter wing span, starting with six aircraft in April 1958 and finally totalling fourteen by continually taking up options. In conjunction with B.E.A., Olympic Airways ordered four Comet 4B's taking delivery during 1960, two on the British register and two registered in Greece. Later, B.E.A.'s G-ARJL was added to the Olympic fleet. B.E.A. took delivery of their first aircraft on 9th November 1959, G-APMA having taken part in the Daily Mail London-Paris Air Race on 19th July. B.E.A.'s first scheduled services were operated on 1st April 1960 with G-APMB from Tel Aviv to London, G-APMD in the reverse direction, G-APMF from London to Moscow and G-APMA from London to Nice.

The final Mark of the Comet Series 4 was the export version designated the Mk.4C which had the high density fuselage of the Mk. 4B and the long range wing of the Mk. 4. The first customer for this version was Mexicana who took delivery of their first aircraft on 14th February 1960 followed by two more before the end of the year. Other Comet 4C operators are Misrair, later renamed United Arab Airlines who ordered a total of nine aircraft, the ninth replacing SU-AMW which was written off in the jungle on 19th July 1962. Many of these United Arab Comets went on to the scheduled services on their delivery flights to Cairo. Soon Middle East Airlines followed the Comet trend and ordered a total of four Mk. 4C's, their first being delivered in December 1960. At one stage it was possible that M.E.A. would order a fifth, but this was eventually sold as a replacement aircraft to Aerolineas Argentinas as LV-AIB after flying at

The Comet 4 after its record-breaking flight from New York to Hatfield on August 12th 1958; 3,500 miles non-stop in 6 hours 16 minutes at an average speed of 558 m.p.h.

Comet 4, c/n 6415, G-APDN of B.O.A.C. at London Airport after returning from loan to Kuwait Airways. (Photo: the author)



Comet 4, c/n 6428, ex-B.O.A.C. G-APDI seen at London Airport in March 1966 before delivery to Mexicana, for modifications prior to service with Ecuador. (Photo: the author)

the S.B.A.C. display for 1961, in M.E.A. colours as G-AROV.

The last two airline customers were Sudan Airways, who had two Mk. 4C's previously registered in Mexico for Mexicana, delivered at the end of 1962, and Kuwait Airways who also ordered two Mk. 4C's. Most of these Comets are still used on the London Airport Services, except the Mexicana aircraft which are rarely seen this side of the Atlantic.

One of the most interesting of all the Comets was the one ordered for the personal transport of King Saud of Saudi Arabia. This aeroplane was luxuriously appointed, including a Royal Bedroom and had one of the most original colour schemes ever used on an aircraft. This aircraft came to an untimely end in the Alps on 20th March 1963.

On 15th February 1962, the R.A.F. took delivery of the first of five Comet C. 4's for 216 Sqdn. Transport Command at Lyneham. These aircraft, XR 395 to XR 399, have been used on regular round the world trips for Transport Command, helped by the Mk. C.2's with remarkable regularity, and can readily be converted from ninety-four rearward facing seats to ambulance duties or V.I.P. transport. One more Comet 4C was ordered for service use in 1962 and that was XS 235 which was delivered to Boscombe Down in December 1963 as a self-contained flying laboratory.

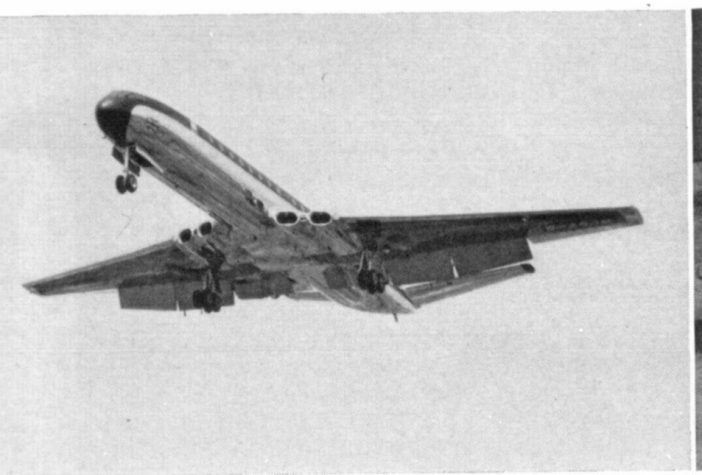
At the time of writing, the first airline to put their Comets on the second hand market is B.O.A.C., who have disposed of five to Malaysian Airways, two to Mexicana, two to Dan-Air and two to Ecuador with another on a six-month lease to East African Airways. The remaining six aircraft were lined up at London Airport awaiting a purchaser of these fine aircraft, the last B.O.A.C. scheduled service being from New Zealand on 24th November 1965, by G-APDM. All the other Comet operators are still going strong, finding the aircraft still has good operating economics and a great passenger appeal.

The perseverance and determination of de Havillands to carry on in the face of disaster has born fruit with a total of seventy-five of the Comet Series 4 having been built. It is also remarkable that an aeroplane whose original design commenced in 1946 is still being developed into a useful maritime reconnaissance aircraft twenty years later. That of course, is another story.

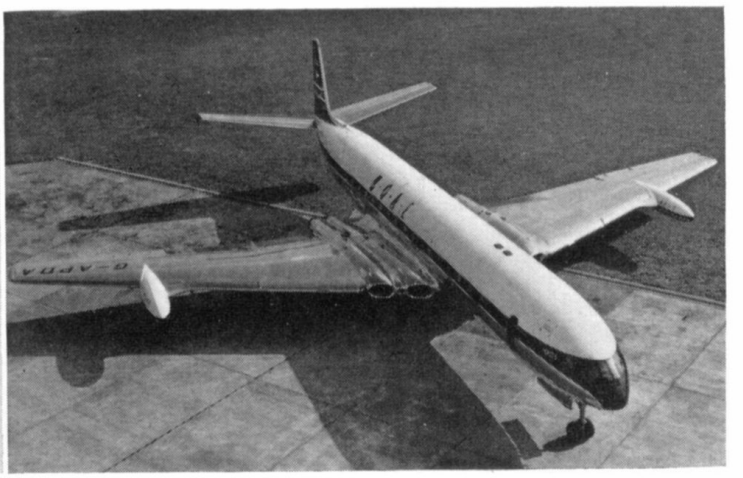
COMET 4 DESCRIBED

The Comet is a moderately swept low wing structure of all metal stressed skin construction. The wings are made up of front and rear spars, with a false spar between, joined by closely spaced ribs. The wings are covered by machined pre-formed skins attached to the ribs by counter-sunk bolts. The stub wings are joined at the centre section with the engine intake and exhaust fairings attached on, followed by the extension wings. The whole wing is sealed in compartments incorporating integral fuel tanks. The machined skins are strengthened by stiffeners which are redux bonded to the skins.

Comet 4B c/n 6456, G-ARJM of B.E.A. showing the generous flaps to advantage immediately before touch-down. This aircraft was written off at Ankara on December 21st, 1961. (Photo: the author)



Comet 4 contours shown clearly in a study of G-APDA in factory-fresh paint scheme of B.O.A.C.



A Comet 4B of B.E.A. taxying past the Central Area buildings at London Airport. This aircraft forms the subject of the 5-view drawing at centre.

Maintenance being carried out on a Comet 4B at the B.E.A. Engineering Base at London Airport.

The ten foot, three inch diameter fuselage is covered by stretch formed skins where double curvature is required, or the skins are just pushed over the frames on assembly, where only single curvature is needed. The stiffeners are reduxed on to the skins before assembly by flush rivetting. The fuselage is pressurised apart from the nose radome and the tail section and all the window cut-outs are oval.

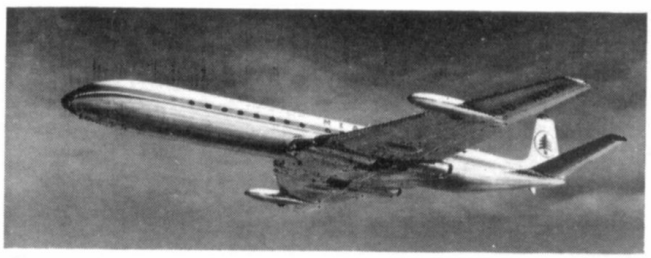
The twin wheeled nose under-carriage retracts rearwards, hinging from just behind the nose-located weather radar. The main undercarriage consists of a sideways retracting four-wheel bogie with the rear wheels trailing to absorb the first landing shock, the track being 28 ft. 2 ins. Maxaret anti-skid brakes are fitted with cooling fans and reverse thrust is fitted to the outboard engines.

The cockpit layout is conventional for two pilots with full dual controls and engine and trim controls on a central pedestal. The third crew member in the cockpit is usually a flight engineer and there is provision for two more crew on the flight deck.

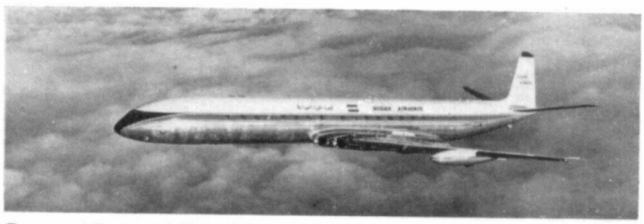
The cabin of the Comet 4 can seat from sixty first class passengers four abreast, to eighty-one economy class seated five abreast. The longer fuselage of the Comet 4B and 4C can carry seventy-two first class, four abreast, going up to one hundred and one economy class, five abreast. Baggage holds are provided under the cabin floors with doors on the underside of the fuselage. The maximum width of the passengers cabin is 9 ft. 9 ins. with a height of 6 ft. 6 ins.

© *P. J. Birtles, 1966*

First Comet 4B during the flight test programme shortly after its maiden flight, June 27th 1959.



Comet 4C, c/n 6445, OD-ADR (previously OD-ADK), the first for Middle East Airlines.



Comet 4C, c/n 6457, ST-AAW of Sudan Airways; the first of two aircraft.

Comet 4C, c/n 6425, XA-NAS, the second for Mexicana. temporarily registered G-AOVV for certification flying before delivery.

D.H.106 COMET SERIES 1 TO SERIES 4, PRODUCTION AND OWNERSHIP

C/n 06001. *G-ALVG*, ex *G-5-1*, f/f 27/7/49. First prototype owned by Ministry of Supply, employed in development flying at Hatfield until 1953, when it was sent to R.A.E. Farnborough for structural testing to destruction.

C/n 06002. *G-ALZK*, ex *G-5-2*, f/f 27/7/50. Second prototype handed over to M.O.S. 2/4/51. Development flying until 1955, when dismantled and sent to R.A.E.

C/n 06003. *G-ALYP*, f/f 28/7/51, d/d to B.O.A.C. 8/4/52 as first production Series 1. Lost off Elba 10/1/54.

C/n 06004. *G-ALYR*, f/f 28/7/51, d/d to B.O.A.C. 17/5/52. Badly damaged after skidding off the runway at Calcutta (Dum Dum) 25/7/53. Pieces returned to L.A.P. for reconstruction, but remains to Farnborough for structural test after dismantling in June, 1955.

C/n 06005. *G-ALYS*, f/f 8/9/51, d/d to B.O.A.C. 4/2/52 as their first aircraft. Sent to R.A.E. for systems and buffet tests after accidents and scrapped in 1955.

C/n 06006. *G-ALYT*, f/f 16/2/52 owned by M.O.S. Modified Srs. 1 airframe fitted with Rolls Royce Avon engines in place of the D.H. Ghosts. Designated the Type No. 2X it served as a prototype Srs. 2 and was finally flown to R.A.F. Halton 15/6/59 where it became instructional airframe No. 7610M '8', and where it is still used for ground instruction on engine running.

C/n 06007. *G-ALYU*, f/f 13/12/51, d/d to B.O.A.C. 6/3/52. To R.A.E. for structural test in water tank Aug./Sept. 1954 after being partially dismantled. To Pengham Moors for passenger escape trials.

C/n 06008. *G/ALYV*, f/f 9/4/52, d/d to B.O.A.C. 23/4/52. Broke up and destroyed in violent storm after take-off from Calcutta, 2/5/53.

C/n 06009. *G-ALYW*, f/f 25/2/52, d/d to B.O.A.C. 14/6/52. To R.A.E., June 1955.

C/n 06010. *G-ALYX*, f/f 9/7/52, d/d to B.O.A.C. 25/7/52. Hatfield and R.A.E. tests until 1955.

C/n 06011. *G-ALYY*, f/f 10/9/52, d/d to B.O.A.C. 23/9/52. Lost off Stromboli 8/4/54, when on charter to South African Airways.

C/n 06012. *G-ALYZ*, f/f 23/9/52, d/d to B.O.A.C. 30/9/52. Damaged beyond repair at Rome (Ciampino) 26/10/52, after failure to become airborne.

C/n 06013. *G-ANAV*, f/f 11/8/52. First Mk. 1A and originally to have been *CF-CUM* for Canadian Pacific Airways, but purchased by B.O.A.C. before delivery. To R.A.E. 24/5/54 and flying Aug./Sept. 1954 for instrument test flying until 1955. Nose section to Science Museum.

C/n 06014. *CF-CUN*, f/f 24/12/52, d/d to C.P.A. 2/3/53, but destroyed on delivery flight at Karachi 3/3/53 after failing to become airborne.

C/n 06015. *F-BGSA*, f/f 13/11/52, d/d to U.A.T. 11/12/52, and withdrawn from service 12/4/54.

C/n 06016. *F-BGSB*, f/f 21/1/53, d/d to U.A.T. 19/2/53, and withdrawn from service 12/4/54.

C/n 06017. *VC5301*, f/f 21/2/53, d/d to 412 Sqdn. R.C.A.F. 18/3/53, and retired in 1964.

C/n 06018. *VC5302*, f/f 25/3/53, d/d to 412 Sqdn. R.C.A.F. 13/4/53, and retired in 1964.

C/n 06019. *F-BGSC*, f/f 15/4/53, d/d to U.A.T. 30/4/53 and damaged beyond repair at Dakar 25/6/53, after skidding off the runway.

C/n 06020. *F-BGNX*, f/f 6/5/53, d/d to Air France 12/6/53. Purchased by M.O.S. after accidents as *G-AOJT* 27/6/56, and dismantled at Farnborough shortly after.

C/n 06021. *F-BGNY*, f/f 22/5/53, d/d to Air France 7/7/53. Purchased by M.O.S. after accidents as *G-AOJU*, then become *XM829* at Boscombe Down for Decca/Dectra trials and finally to the Fire Compound at Stansted 20/2/64.

C/n 06022. *F-BGNZ*, f/f 16/3/53, d/d to Air France 22/7/53. Purchased by M.O.S. after accidents as *G-APAS*, then *G-5-23* and finally *XM823* with de Havilland Propellors, where it is still engaged on trials with Hawker Siddeley Dynamics in the Spring of 1966.

C/n 06023. *G-AMXA*, f/f 29/8/53, originally as first Series 2 for B.O.A.C. Converted to Mk.2R for 192 and 51 Sqdns. Signals Command as *XK655*.

C/n 06024. *G-AMXB*, f/f 3/11/53 as civil aircraft. Converted to Mk.T2 and f/f as *XK669* 9/12/55. Delivered to 216 Sqdn. Transport Command 8/6/56. Later modified to full Mk.C2 standard and named "Taurus".

C/n 06025. *G-AMXC*, f/f 25/11/53 as civil aircraft. Converted to Mk. 2R for 192 and 51 Sqdns. Signals Command as *XK659*.

C/n 06026. *G-AMXD*, f/f 20/8/54, owned by M.O.S., converted to Mk. 2E with Avon RA.29's in both outboard engine bays. Delivered to B.O.A.C. 29/8/57 for proving trials. Finally became *XN453* for long range radio aid development at Farnborough.

C/n 06027. *G-AMXE*, f/f 18/7/55 as *XK663*, a Mk.2R, d/d to 90 Group 19/4/57.

C/n 06028. *XK670*, f/f 12/3/56 as Mk. T2 ex *G-AMXF*. Delivered to 216 Sqdn., Lyneham 7/6/56 and later converted to a Mk.C2 and named "Corvus".

C/n 06029. *XK671*, f/f 16/7/56 as Mk.C2 ex *G-AMXG*. Delivered to 216 Sqdn. 22/8/56, Named "Aquila".

C/n 06030. *XK695*, f/f 21/8/56 as Mk. C2 ex *G-AMXH*. Delivered to 216 Sqdn. 14/9/56, but later converted to a Mk. 2R and redelivered to 51 Sqdn. 8/3/63. Was named "Perseus".

C/n 06031. *XK696*, f/f 29/9/56 as Mk.C2 ex *G-AMXI*. Delivered to 216 Sqdn. 14/11/56, and named "Orion".

C/n 06032. *XK697*, f/f 17/11/56 as Mk.C2 ex *G-AMXJ*. Delivered to 216 Sqdn. at Lyneham 12/12/56 and named "Cygnus".

C/n 06033. *G-AMXK*, f/f 10/7/57 as Mk.2E and d/d to M.O.S. 26/8/57 for Avon RA.29 proving trials with B.O.A.C. Based at Hatfield for Smith trials from early 1960's for Autoland development. Due to go to BLEU, Bedford, 1966.

C/n 06034. *XK698*, f/f 13/12/56 as Mk.C2, d/d to 216 Sqdn. at Lyneham 9/1/57. Was named "Pegasus".

C/n 06035. *XK699*, f/f 2/2/57 as Mk.C2, d/d to 216 Sqdn. at Lyneham 20/2/57. Was named "Sagittarius".

C/n 06036. Airframe owned by M.O.S. and used for water-tank tests.

C/n 06037. *XK715*, f/f 26/4/57 as Mk.C2, d/d to 216 Sqdn. Lyneham 22/5/57. "Columba".

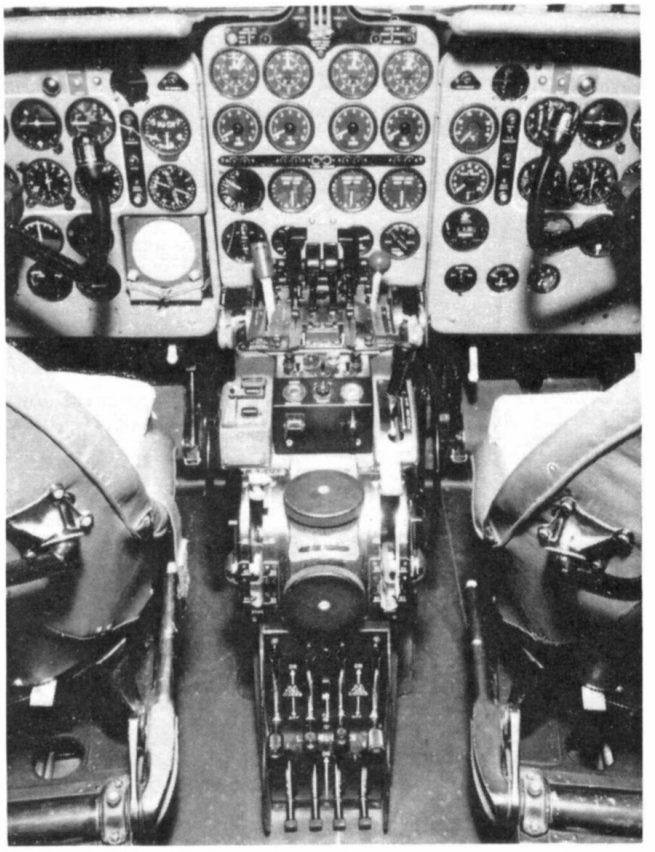
C/n 06038 to c/n 06044 not completed.

C/n 06045. *XK716*, f/f 6/5/57 as Mk.C2 and first Comet to be built at Chester. D/d 7/5/57 to 216 Sqdn Lyneham and named "Cepheus".

C/n 06046 to c/n 06049 unfinished at Chester.

C/n 06100. *G-ANLO*, f/f 19/7/54 as first Mk. 3, owned by M.O.S. and used as development prototype for Series 4 and Series 4B. Became *XP915* and sent to BLEU, Bedford, 21/6/61.

C/n 06101. Fuselage and wings completed and used separately for structural tests.



Comet 4 cockpit.

D.H.106 COMET SERIES 4 VARIANTS

C/n 06401. *G-APDA*, f/f 27/4/58, first production Mk.4, d/d to B.O.A.C. 24/2/59. Sold to Malaysian Airways as *9M-AOA* 9/12/65, re-registered *9V-BAS*.

C/n 06402. Airframe allocated to structural tests in water tank at Hatfield.

C/n 06403. *G-APDB*, f/f 27/7/58 from Hatfield, d/d to B.O.A.C. 30/9/58. Sold to Malaysian Airways June 1965 as *9M-AOB*.

C/n 06404. *G-APDC*, f/f from Hatfield 23/9/58, d/d to B.O.A.C. 30/9/58. Sold to Malaysian Airways as *9M-AOC* and d/d 14/10/65. Re-registered *9V-BAT*.

C/n 06405. *G-APDD*, f/f from Hatfield 5/11/58, d/d to B.O.A.C. 18/11/58. Sold to Malaysian Airways as *9M-AOD* and d/d 8/11/65.

C/n 06406. *G-APDE*, f/f from Chester 20/9/58, d/d to B.O.A.C. 2/10/58. Sold to Malaysian Airways as *9M-AOE* and d/d 5/10/65. Re-registered *9V-BAU*.

C/n 06407. *G-APDF*, f/f from Hatfield 11/12/58, d/d to B.O.A.C. 31/12/58.

C/n 06408. *LV-PLM*, Mk.4, f/f from Hatfield 27/1/59, d/d 2/3/59 to Aerolineas Argentinas, re-registered *LV-AHN* and named "Las Tres Marias".

C/n 06409. *G-APDH*, Mk.4, f/f from Chester 21/11/58, d/d 6/12/58 to B.O.A.C. Leased to Malaysian Airways. The aircraft burned and was damaged beyond repair at Singapore 22/3/64, no fatalities.

C/n 06410. *LV-PLO*, Mk.4, f/f from Hatfield 25/2/59. D/d 18/3/59 to Aerolineas Argentinas, re-registered *LV-AHO* and named "Lucero de la Tarde". Destroyed after heavy landing 20/2/60 at Ezeiza, B.A. on crew training.

C/n 06411. *LV-PLP*, Mk.4, f/f from Hatfield 24/3/59. D/d 2/5/59 to Aerolineas Argentinas, re-registered *LV-AHP* and named "El Lucero del Alba". Damaged beyond repair on hill top near Asuncion 27/8/59, when approaching to land.

C/n 06412. *G-APDK*, Mk.4, f/f from Chester 2/1/59, d/d 12/2/59 to B.O.A.C. Allocated to Dan-Air.

C/n 06413. *G-APDL*, Mk.4, f/f from Hatfield 27/4/59, d/d 6/5/59 to B.O.A.C. Struck ground in game park 9 miles short of Nairobi on approach 2/2/64 and carried on to make safe landing. Chartered to East African Airways for 6 months, November 1965 as *5Y-ADD*.

C/n 06414. *G-APDM*, Mk.4, f/f from Chester 21/3/59, d/d to B.O.A.C. 16/4/59. Belly landing at Stansted 3/8/62. Flew last B.O.A.C. Comet service from New Zealand to L.A.P. 24/11/65.

C/n 06415. *G-APDN*, Mk.4, f/f from Hatfield 29/5/59, d/d to B.O.A.C. 10/6/59. Leased to Kuwait late 1965 and returned February 1966.

C/n 06416. *G-APDO*, Mk.4, f/f from Chester 29/4/59, d/d to B.O.A.C. 14/5/59. Allocated to Dan-Air.

C/n 06417. *G-APDP*, Mk.4 f/f from Chester 29/5/59, d/d to B.O.A.C. 11/6/59. Leased for a time to Air Ceylon.

C/n 06418. *G-APDR*, Mk.4, f/f from Chester 9/7/59, d/d to B.O.A.C. 20/7/59. First aircraft fitted with reverse thrust. Sold to Mexicana as *XA-NAZ*, 3/12/64.

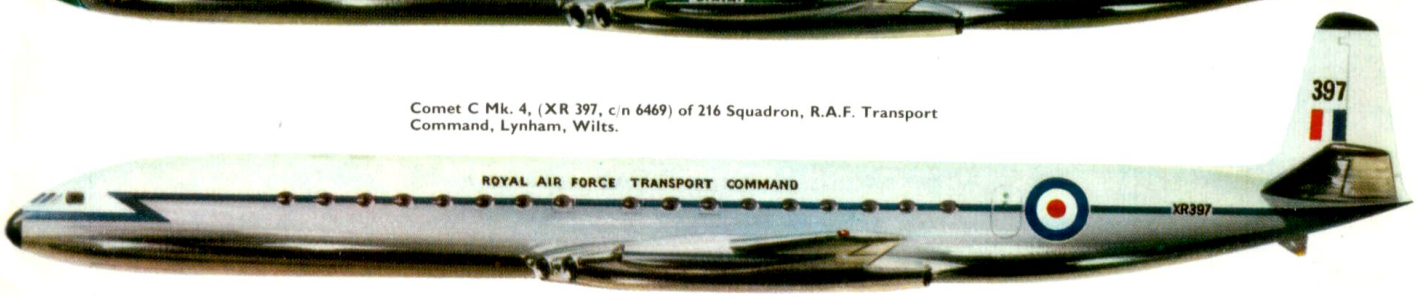
Comet 4C (OD-ADR c/n 6445, previously OD-ADK). First aircraft for Middle East Airlines.

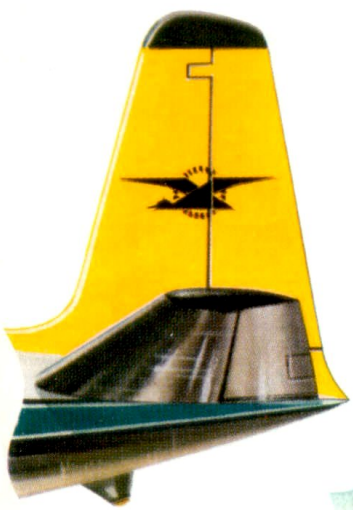
Comet 4 of Aerolineas Argentinas, "El Lucero del Alba". Crashed near Asuncion, 27.8.1959. (LV-AHP).

Comet 4C (9K-ACA c/n 6465). First of two supplied to Kuwait.

Comet 4C (SU-ALE, c/n 6444). Third Comet for United Arab Airlines.

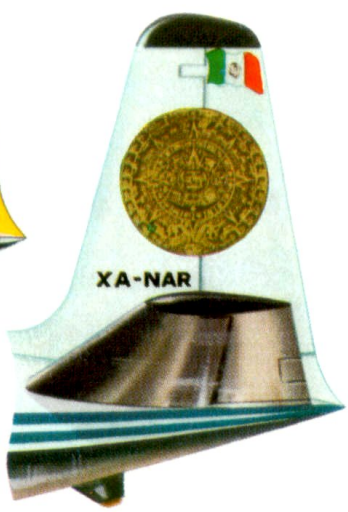
Comet C Mk. 4, (XR 397, c/n 6469) of 216 Squadron, R.A.F. Transport Command, Lynham, Wilts.

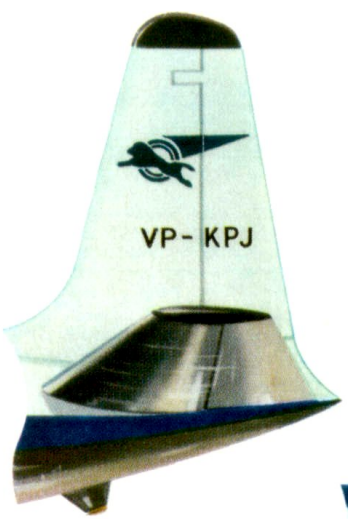




Sudan Airways, (Comet 4C)

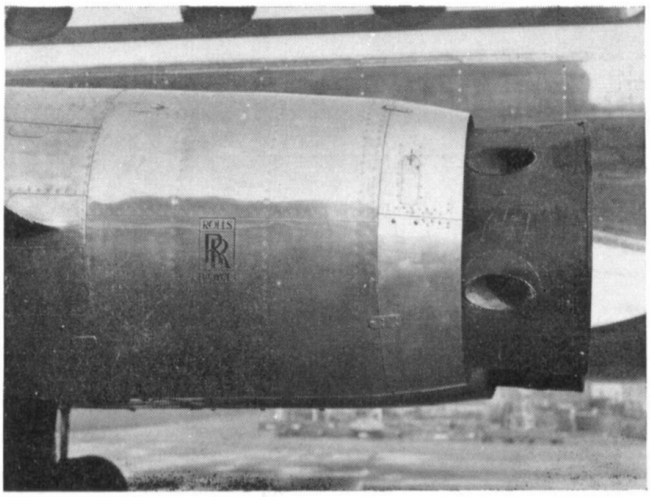
Mexicana (Comet 4C)





East African Airways (Comet 4)

Olympic Airways (Comet 4B)



Comet 4C silencer close-up view.

C/n 06419. *G-APDS*, Mk.4, f/f from Chester 6/8/59, d/d to B.O.A.C. 14/8/59. Wheels knocked off on a hill approaching Madrid 14/3/60. Leased to Air Ceylon and also Kuwait Airways late 1965. Returned February 1966.
C/n 06420. *G-APDT*, Mk.4, f/f from Chester 2/10/59, d/d to B.O.A.C. 19/10/59. Sold to Mexicana as *XA-MAB*, 25/11/65.
C/n 06421. *G-APMA*, Mk.4B, f/f from Hatfield 27/6/59, d/d to B.E.A. 20/12/59. Used for development flying on Mk.4B before delivery.
C/n 06422. *G-APMB*, Mk.4B, f/f from Hatfield 17/8/59, d/d to B.E.A. 9/11/59.
C/n 06423. *G-APMC*, Mk.4B, f/f from Hatfield 1/10/59, d/d to B.E.A. 16/11/59.
C/n 06424. *XA-NAR*, Mk.4C, f/f 31/10/59 from Hatfield. Ex 4B *G-APMD*, temporarily registered *G-AOYU* for British and American certification. Delivered 8/6/60 to Mexicana and named "Golden Aztec".
C/n 06425. *XA-NAS*, Mk.4C, f/f from Hatfield 3/12/59. Ex Mk.4B *G-APME*, temporarily registered *G-AOVV* for certification flying.
C/n 06426. *G-APMF*, Mk.4B, f/f from Hatfield 5/1/60, d/d to B.E.A. 27/1/60.
C/n 06427. *G-APDG*, Mk.4, f/f from Chester 12/11/59, d/d to B.O.A.C. 28/11/59 and chartered to M.E.A. 1/11/60.
C/n 06428. *G-APDI*, Mk.4, f/f from Chester 7/12/59, d/d to B.O.A.C. 18/12/59. Sold to Ecuador March 1966.
C/n 06429. *G-APDJ*, Mk.4, f/f from Chester 23/12/59, d/d to B.O.A.C. 11/1/60. Sold to Ecuador, March 1966.
C/n 06430. *LV-POY*, Mk.4, f/f from Hatfield 15/2/60, d/d to Aerolineas Argentinas 8/3/60, re-registered *LV-AHR* and named "Alborada". Destroyed after take-off at Sao Paulo 23/11/61 when it hit trees.
C/n 06431. *VP-KPJ*, Mk.4, f/f from Chester 14/7/60, d/d to East African Airways 25/7/60. Re-registered *5X-AAO*, April 1964.
C/n 06432. *LV-POZ*, Mk.4, f/f from Chester 18/2/60, d/d to Aerolineas Argentinas 19/3/60. Re-registered *LV-AHS* and named Tres "Las Marias".
C/n 06433. *VP-KPK*, Mk.4, f/f from Chester 28/7/60, d/d to East African Airways 6/9/60, re-registered *5H-AAF* April 1964.
C/n 06434. *LV-PPA*, Mk.4, f/f from Chester 2/7/60, d/d to Aerolineas Argentinas 26/7/60, re-registered *LV-AHU* and named "Centaurus".
C/n 06435. *G-APMD*, Mk.4B, f/f from Hatfield 17/3/60, d/d to B.E.A. 29/3/60.
C/n 06436. *G-APME*, Mk.4B, f/f from Hatfield 26/4/60, d/d to B.E.A. 10/5/60.
C/n 06437. *G-APYC*, Mk.4B, f/f from Hatfield 7/4/60, d/d to Olympic Airways 26/4/60. Re-registered *SX-DAK* and named "Queen Frederica".
C/n 06438. *G-APYD*, Mk.4B, f/f from Hatfield 3/5/60, d/d to Olympic Airways 14/5/60. Re-registered *SX-DAL* and named "Queen Olga".
C/n 06439. *SU-ALC*, Mk.4C, f/f from Chester 21/5/60, d/d to Misrair 10/6/60.
C/n 06440. *G-APZM*, Mk.4B, f/f from Hatfield 30/6/60, d/d to Olympic Airways 14/7/60. Named "Queen Sophia".
C/n 06441. *SU-ALD*, Mk.4C, f/f from Chester 15/6/60, d/d to Misrair 29/6/60. Crashed in sea en route Bangkok to Bombay 28/7/63.
C/n 06442. *G-APMG*, Mk.4B, f/f from Hatfield 25/7/60, d/d to B.E.A. 31/7/60.
C/n 06443. *XA-NAT*, Mk.4C, f/f from Hatfield 7/10/60, d/d to Mexicana 29/11/60. Temporarily registered *G-ARBB*.
C/n 06444. *SU-ALE*, Mk.4C, f/f from Chester 22/11/60, d/d to United Arab Airlines 23/12/60.
C/n 06445. *OD-ADK*, Mk.4C, f/f from Hatfield 3/12/60, d/d to Middle East Airlines 19/12/60 and re-registered *OD-ADR*.
C/n 06446. *OD-ADQ*, Mk.4C, f/f from Chester 4/2/61, d/d to M.E.A. 15/2/61.
C/n 06447. *G-ARDI*, Mk.4B, f/f from Hatfield 18/3/61, d/d to Olympic Airways 25/3/61.
C/n 06448. *OD-ADS*, Mk.4C, f/f from Chester 5/3/61, d/d to M.E.A. 14/3/61.
C/n 06449. *G-ARCO*, Mk.4B, f/f from Hatfield 5/4/61, d/d to B.E.A. 13/4/61.
C/n 06450. *OD-ADT*, Mk.4C, f/f from Chester 9/3/61, d/d to M.E.A. 18/3/61.
C/n 06451. *G-ARCP*, Mk.4B, f/f from Hatfield 11/4/61, d/d to B.E.A. 19/4/61.
C/n 06452. *G-ARJK*, Mk.4B, f/f from Chester 4/5/61, d/d to B.E.A. 15/5/61.
C/n 06453. *G-ARGM*, Mk.4B, f/f from Hatfield 27/4/61, d/d to B.E.A. 6/5/61. Was regd. *G-AREI*.
C/n 06454. *SU-ALL*, Mk.4C, f/f from Chester 30/5/61, d/d to U.A.A. 12/6/61.
C/n 06455. *G-ARJL*, Mk.4B, f/f from Hatfield 19/5/61, d/d to B.E.A. 31/5/61. Painted in Olympic Airways colours February 1964.
C/n 06456. *G-ARJM*, Mk.4B, f/f from Chester 8/6/61, d/d to B.E.A. 26/6/61. Destroyed after take-off at Ankara 21/12/61.
C/n 06457. *ST-AAW*, Mk.4C, f/f from Hatfield 5/11/62, d/d to Sudanair 14/11/62. Was to have been *XA-NAD* of Mexicana. Temporary registration *G-ASDZ* before delivery.
C/n 06458. *SU-ALM*, Mk.4C, f/f from Chester 30/6/61, d/d to U.A.A. 15/7/61.
C/n 06459. *G-ARJN*, Mk.4B, f/f from Hatfield 21/7/61. Last d/d to B.E.A. 4/8/61.
C/n 06460. *G-AROV*, Mk.4C, f/f from Chester 21/8/61. Originally to go to M.E.A., but order not taken up. U.K. regn. used for Farnborough display in 1961. Finally sold to Aerolineas Argentinas as *LV-PTS* d/d 27/4/62, re-registered *LV-AIB* and named "President Kennedy".
C/n 06461. *SA-R-7*, Mk.4C, f/f from Hatfield 29/3/62. Ordered by Saudi Arabian Airlines as personal transport for King Saud. Crashed in Alps, near Cuneo on flight from Geneva to Nice on night of 20/3/63.
C/n 06462. *SU-AMV*, Mk.4C, f/f from Chester 25/3/62, d/d to U.A.A. 6/4/62.
C/n 06463. *ST-AAX*, Mk.4C, f/f from Hatfield 8/12/62, d/d to Sudanair 21/12/62. Was to have been *XA-NAE* of Mexicana. Last Comet built at Hatfield.
C/n 06464. *SU-AMW*, Mk.4C, f/f 3/4/62, d/d to U.A.A. 16/4/62. Crashed in jungle at Khao Yai, Thailand 19/7/62.
C/n 06465. *9K-ACA*, Mk.4C, f/f 14/12/62, d/d to Kuwait Airways 18/1/63.
C/n 06466. *SU-ANC*, Mk.4C, f/f 8/12/62, d/d to U.A.A. 22/12/62
C/n 06467. *XR 395*, Mk.C4, f/f 15/11/61, d/d to 216 Sqdn. Lyneham 1/6/62.
C/n 06468. *XR 396*, Mk.C4, f/f 28/12/61, d/d to 216 Sqdn. Lyneham 12/3/62
C/n 06469. *XR 397*, Mk.C4, f/f 17/1/62, d/d to 216 Sqdn. Lyneham 15/2/62.
C/n 06470. *XR 398*, Mk.C4, f/f 13/2/62, d/d to 216 Sqdn. Lyneham 16/3/62.
C/n 06471. *XR 399*, Mk.C4, f/f 20/3/62, d/d to 216 Sqdn. Lyneham 26/4/62.
C/n 06472. *VP-KRL*, Mk.4, f/f 12/3/62, d/d to East African Airways 10/4/62. Re-registered as *5Y-AAA* April 1964.
C/n 06473. *XS 235*, Mk.4C, f/f 26/9/63, d/d to A. & A.E.E. 2/12/63 as flying laboratory.
C/n 06474. *9K-ACE*, Mk.4C, f/f 17/12/63, d/d to Kuwait Airways 2/2/64 in record time of 6 hours, 2 minutes, ten seconds, a distance of 3,169 miles and a speed of 527 m.p.h.
C/n 06475. *SU-ANI*, Mk.4C, f/f 4/2/64, d/d to U.A.A. 26/2/64 as last civil Comet.

The personal transport of King Ibn Saud of Saudi Arabia, Comet 4C (c/n 6461) SA-R-7 crashed in the Alps on March 20th, 1963 killing all aboard. At the time part of the royal retinue were flying in the aircraft.

MANUFACTURED BY DE THE HAVILLAND AIRCRAFT COMPANY AT HATFIELD, HERTFORDSHIRE AND HAWARDEN, CHESTER

Data on all Marks. Series	1	1A	C2	3	4	4A	4B	4C
Span	115 ft.	115 ft.	115 ft.	114·8 ft.	114·8 ft.	107·8 ft.	107·8 ft.	114·8 ft.
Length	93·1 ft.	93·1 ft.	96·1 ft.	111·5 ft.	111·5 ft.	114·83 ft.	118 ft.	118 ft.
Height...	28·5 ft.	28·5 ft.	28·5 ft.	28·5 ft.	28·5 ft.	28·5 ft.	28·5 ft.	28·5 ft.
Wing Area	2,105 ft.²	2,105 ft.²	2,027 ft.²	2,121 ft.²	2,121 ft.²	2,059 ft.²	2,059 ft.²	2,121 ft.²
All-up weight (Max.)	105,000 lbs.	115,000 lbs.	120,000 lbs.	145,000 lbs.	160,000 lbs.	152,500 lbs.	158,000 lbs.	162,000 lbs.
Cruising Speed ...	450 m.p.h.	450 m.p.h.	480 m.p.h.	500 m.p.h.	503 m.p.h.	522 m.p.h.	532 m.p.h.	503 m.p.h.
Cruising Height ...	35,000 ft.	40,000 ft.	40,000 ft.	40,000 ft.	42,000 ft.	23,500 ft.	23,500 ft.	39,000 ft.
Max. range with full pay-load	1,500 mls.	1,770 mls.	2,535 mls.	2,700 mls.	3,225 mls.	2,730 mls.	2,500 mls.	2,650 mls.
No. of passengers (max.)	36	44	44	78	81	92	101	101
Engines—4	Ghost 50Mk.1	Ghost 50Mk.2	Avon Mk.117	Avon 502s	Avon 524s	Avon 524s	Avon 524s	Avon 525Bs
Static thrust	4,450 lb. s.t.	5,000 lb. s.t.	7,300 lb. s.t.	10,000 lb. s.t.	10,500 lb. s.t.	10,500 lb. s.t.	10,500 lb. s.t.	10,500 lb. s.t
Total tankage (Imp. galls.)	6,000	6,906	6,906	8,360	8,900	7,800	7,800	8,900

N.B. Comet 3B had span of 107·8 ft. and wing area of 2,059 ft.²

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